Attorney Docket No. 24935D

REMARKS

This Amendment is submitted in response to the outstanding Office Action dated July 10, 2006. Favorable reconsideration of the application, and a Notice of Allowance, are respectfully requested.

Indefiniteness Rejection

Claims 43 and 44 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for use of the phrase "shrinkage resistance property". In the previous amendment, the term "property" was inserted in response to the Examiner's comments in the previous rejection to clarify that the shrinkage resistance relates to a property of the mat used in the method and it is not a separate method step. Claim 43 has now been amended to delete "property" in response to the current rejection, leaving the term "shrinkage resistance".

The term "shrinkage resistance" is well described in the specification. In paragraph [0034] (page 7, lines 1-6), it is described that the use of high melting point fibers forms a mat having not more than minimal melting or shrinking when it is exposed to hot paving material. As recited in claims 19 and 43, both the polymer fibers and the mineral fibers have a melting point above 330°F (166°C). As described in paragraph [0041] (page 8, lines 21-26), a preferred mat according to the invention is produced from a mixture of 30% polyethylene terephthalate (PET) fibers and 70% glass fibers. PET fibers have a melting point above 330°F. The shrinkage resistance of the mat is further described in paragraph [0043] (page 9, lines 13-18). The shrinkage resistance of the mat is said to contrast with a mat made from polypropylene fibers which would have a significant amount of shrinkage (because polypropylene fibers do not have a melting point above 330°F). Paragraph [0043] also describes a suitable test method for measuring the shrinkage resistance of the mat.

Prior Art Rejection

Claims 19, 22, 43 and 44 were rejected under 35 U.S.C. 103(a) as being unpatentable over Shah et al. (U.S. Pat. No. 4,637,946) in view of Gallagher et al. (U.S. Pat. No. 5,869,413).

Shah et al.

Shah et al. discloses a membrane for the repair of road surfaces, particularly for the retardation of reflective cracking from an old road surface to a newly-applied overlay. The membrane is a glass fiber mat impregnated with a blend of asphalt, block copolymer and mineral filler.

In contrast to the invention recited in the present claims, there is no suggestion in Shah et al. to apply a mat produced from a mixture of mineral fibers and polymer fibers, the fibers having a melting point above 330°F. Moreover, there is no suggestion in Shah et al. of such a mat having a load-elongation behavior whereby the mat achieves at least 90% of its ultimate load at an elongation not greater than 5% of the mat length in the direction of applied tensile stress.

Rebuttal of Examiner's Characterization of Shah et al.

The Examiner stated that Shah et al. discloses a reinforcement mat comprising a layer of polymer fillers and nonwoven mineral fibers, such as glass fibers integrated together. Applicants respectfully disagree with this characterization. Shah et al. discloses a 100% glass fiber mat. The mat then is impregnated with a blend of asphalt, block copolymer and mineral filler to produce the membrane. This structure is fundamentally different from the claimed structure of a nonwoven mat produced from a mixture of mineral fibers and polymer fibers.

Gallagher et al.

Gallagher et al. discloses a highway reinforcement product made from commingled glass fibers and asphalt fibers. The asphalt used to make the fibers can be modified with 2-30% polymer. In contrast to the invention recited in the present claims, there is no suggestion in Gallagher et al. to apply a nonwoven mat produced from a mixture of mineral fibers and polymer fibers, the fibers having a melting point above 330°F, and the mat having a load-elongation behavior such that the mat achieves at least 90% of its ultimate load at an elongation not greater than 5% of the mat length in the direction of applied tensile stress.

Specifically, Gallagher et al. does not disclose a mixture of mineral (glass) fibers and polymer fibers, but rather it discloses a mixture of glass fibers and asphalt

fibers. Asphalt is not a polymer. The asphalt can be modified with 2-30% polymer, but fibers which contain 70-98% asphalt can only be characterized as asphalt fibers; they cannot reasonably be characterized as polymer fibers. The polymer fibers of the present invention are described as being polymer fibers, not asphalt fibers modified with a minor percentage of polymer.

Further, the modified asphalt fibers disclosed in Gallagher et al. do not have a melting point above 330°F as recited in the present claims. Examples II, III and IV of the Gallagher et al. patent disclose modified asphalt fibers having softening points of 285°F, 244°F and 302°F, respectively.

Moreover, there is no suggestion in Gallagher et al. to apply a mat having a load-elongation behavior such that the mat achieves at least 90% of its ultimate load at an elongation not greater than 5% of the mat length in the direction of applied tensile stress. The polymer modified asphalt fibers are described as having high flexibility or elasticity, but there is no suggestion of the elongation properties of a nonwoven mat made with a mixture of glass fibers and polymer fibers. A mat having an elongation greater than that claimed would not work well in the present invention.

Rebuttal of Examiner's Characterization of Gallagher et al.

The Examiner argued that Applicants' claim language "polymer fibers" does not patentably distinguish Gallagher's fibers made with 70-98% asphalt and 2-30% polymer. He argued that although Gallagher et al. includes additional structure not required by Applicants' invention, Gallagher et al. discloses the invention as claimed and the fact that it discloses additional structure not claimed is irrelevant. Applicants respectfully disagree with this reasoning. Gallagher et al. consistently call their fibers "asphalt fibers". For claim construction purposes, the asphalt fibers cannot be reasonably characterized as "polymer fibers" when they are optionally modified with only 2-30% polymer. The optional incorporation of a small percentage of polymer does not change the basic nature of the fibers as asphalt fibers.

Referring to col. 2, lines 6-22, the Examiner argued that Gallagher et al. teaches it is old and well known to use a roadway reinforcing mat having a mixture of polymer fibers and mineral fibers, such as asphalt fibers and glass fibers, to reinforce and

waterproof a roadway. First, Applicants disagree with this statement's assertion that asphalt fibers are polymer fibers; asphalt is not a polymer. Second, this passage in the Gallagher et al. patent does not teach or suggest a reinforcement mat produced from a mixture of mineral fibers and polymer fibers.

Referring to col. 2, the Examiner further argued that Gallagher et al. discloses a nonwoven mat having a mixture of mineral and polymer fibers, the fibers having a melting point in the range of 270-500°F and preferably between 180-350°F. Applicants again disagree with the assertion that Gallagher et al. discloses a mat made from a mixture of mineral fibers and polymer fibers. Further, Applicants disagree that Gallagher et al. discloses polymer fibers having a melting point in the range of 270-500°F and preferably between 180-350°F. Gallagher et al. discloses that the molten asphalt is supplied to the asphalt spinner at a temperature of 270-500°F. This tells nothing about the melting point of the asphalt except that it has a melting point somewhere within that range; the temperature at which the asphalt is supplied to the spinner may be much higher than the melting point of the asphalt. Gallagher et al. discloses that the asphalt preferably has a melting point between 180-350°F. However, the present claims require that all the fibers, the mineral fibers and the polymer fibers, having a melting point above 330°F. As discussed above, Gallagher et al. does not disclose polymer fibers. It does disclose asphalt fibers optionally modified with up to 30% polymer. However, the modified asphalt fibers disclosed in Gallagher et al. do not have a melting point above 330°F as recited in the present claims. Examples II, III and IV of the Gallagher et al. patent disclose modified asphalt fibers having softening points of 285°F, 244°F and 302°F, respectively.

No Motivation to Combine Gallagher et al. with Shah et al.

The Examiner argued that it would have been obvious to combine Gallagher et al. with Shah et al., using the Gallagher et al. mat in the Shah et al. method, in order to maximize a roadway's resistance to moisture, corrosion and thermal flux as suggested by Gallagher et al. Applicants respectfully disagree. At col. 2, lines 20-48, Shah et al. states that it is critical for the invention that the membrane has a low modulus of elasticity, and that this low modulus is achieved by the use of the glass fiber mat

impregnated with a binder containing asphalt, a minor amount of block copolymer, and a filler. Thus, the glass fiber mat in Shah et al. is said to be critical to achieving the purpose of the invention. Clearly, there would be no motivation to replace the glass fiber mat of Shah et al. with the Gallagher et al. mat made from a mixture of glass fibers and asphalt fibers. To make this combination would be contrary to the purpose of the Shah et al. invention.

Even If Combined, Gallagher et al. and Shah et al. Are Different from the Claimed Invention

For at least the reasons discussed above, even if Gallagher et al. is combined with Shah et al., the resulting method is still different from the claimed invention. In particular, Gallagher et al. does not disclose a mat made from a mixture of mineral fibers and polymer fibers. As discussed above, Gallagher et al. discloses asphalt fibers, not polymer fibers. Further as discussed above, there is no suggestion of a mat made with polymer fibers having a melting point above 330°F. Even the polymer-modified asphalt fibers disclosed in Gallagher et al. have a melting point below this temperature.

Moreover, claim 43 states that the mat is resistant to shrinkage as measured by a particular defined test. As discussed above, the use of high melting point fibers forms a mat having this shrinkage resistance. As recited in the claims, both the polymer fibers and the mineral fibers have a melting point above 330°F. Gallagher et al. does not disclose polymer fibers, and the polymer-modified asphalt fibers have a melting point below 330°F, so such a mat would not meet the claimed shrinkage resistance test.

Response to Examiner's Arguments

The Examiner argued that the structure and properties of the mat used in the claimed method do not afford patentable weight to the method claims. He argued that in order to be entitled to weight in method claims, the recited structural limitations (properties) therein must affect the method in a manipulative sense, and not amount to the mere claiming of a use of a particular structure. The Examiner cited the decisions in Ex parte Pfeiffer and Ex parte Kangas in support of this argument.

Applicants again submit that the structure and properties of the mat used in the method are important to the success of the method, and therefore they impart patentable limitations to the claimed method. The prior art neither teaches nor suggests using a mat having the claimed structure and properties in the claimed paving method.

Applicants submit that it is incorrect law to state that in order to be entitled to weight in method claims, the recited structural limitations (properties) therein must affect the method in a manipulative sense, and not amount to the mere claiming of a use of a particular structure. This proposition was taken from Ex parte Pfeiffer. The Ex parte Pfeiffer decision was a decision of the Board of Patent Appeals and Interferences, not a court decision. Further, it was decided 45 years ago in 1961. Applicants searched for subsequent case citations of Ex parte Pfeiffer but could find no citations to it in all the years since then.

Moreover, the decision in Ex parte Pfeiffer is based on outdated law. Ex parte Pfeiffer states at page 1, paragraph 2: "to be entitled to such [patentable] weight in method claims, recited structural limitations must affect method in manipulative sense and not amount to mere claiming of a use of a particular structure; new use is not among categories of patentable inventions specified in 35 U.S.C. 101". In contrast, the current 35 U.S.C. 100 defines the term "process" used in 35 U.S.C. 101 as including a new use of a known process, machine, manufacture, composition of matter or material. Therefore, this proposition from Ex parte Pfeiffer is not applicable based on current law.

Further, Ex parte Kangas is also a 1961 decision of the Board of Patent Appeals and Interferences, not a court decision, and it does not support the proposition argued by the Examiner that the limitations must affect the method in a manipulative sense. The process claims were found to be patentable in Ex parte Kangas.

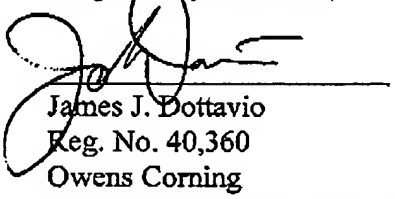
Regarding the shrinkage resistance of the mat recited in claim 43, the Examiner argued that the performance of a 4 ounce sample in an oven at 325°F for one minute does not appear relevant to a reinforcement mat, typically 8-12 feet wide and several thousand feet long, that is applied to a tack coat of liquefied asphalt. Applicants

respectfully disagree. The recited test method is believed to a representative measure of the shrinkage resistance of a mat in a road paving operation. As discussed in paragraph [0004] (page 1, lines 21-31) of the specification, the mat is applied and then a surface layer of paving material is applied over the mat. The hot paving material causes shrinkage of the prior art mats. The oven temperature of 325°F is representative of the temperature at which a paving material is applied over a mat. Also, it is a common practice to test for physical properties of an object by using a smaller sample of the object instead of the entire object, especially when the object is large so that testing the entire object would be difficult and/or impractical. Testing a 4 ounce sample of the mat for shrinkage gives a result that is very representative of the shrinkage properties of the entire mat. Since the materials and structure of the mat are consistent throughout the mat, testing a portion of the mat for resistance to shrinkage is a representative test for the entire mat.

Therefore, it is respectfully submitted that claims 19, 22, 43 and 44 are not obvious over Shah et al. in view of Gallagher et al.

In view of the above remarks, Applicants have shown that the claims are in proper form for allowance, and the invention, as defined in the claims, is neither disclosed nor suggested by the prior art. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection and allowance of all claims.

Respectfully submitted,



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